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Concave schlicht functions with bounded opening angle at infinity

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Abstract

Let D denote the open unit disc. In this article we consider functions f(z) = z + ∑n=2 ∞ an(f)zn that map D conformally onto a domain whose complement with respect to C is convex and that satisfy the normalization f(1) = ∞. Furthermore, we impose on these functions the condition that the opening angle of f(D) at infinity is less than or equal to πA, A ∈ (1,2]. We will denote these families of functions by CO(A). Generalizing the results of [1], [3], and [5], where the case A = 2 has been considered, we get representation formulas for the functions in CO(A). They enable us to derive the exact domains of variability of a2(f) and a3(f), f ∈ CO(A). It turns out that the boundaries of these domains in both cases are described by the coefficients of the conformal maps of D onto angular domains with opening angle πA.

Keywords

Concave schlicht functions, Taylor coefficients